

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-67. (Cancelled)

68. (Currently Amended) A blend of recycled thermoplastic resins, comprising:
a primary polymer type, wherein the primary polymer type is ABS and makes up about 80 to about 99 parts by weight of the blend;

residual additives including two or more additives selected from the group consisting of antioxidants, heat stabilizers, UV stabilizers, flame retardants, antistatics, blowing agents, impact modifiers, compatibilizers, fillers, fiber reinforcements, fluorescent whiteners, and lubricants, wherein the residual additives comprise about 2 to about 7 parts by weight of the blend; and

one or more secondary polymer types that are dissimilar to the primary polymer type and are selected from recycled blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers, general purpose polystyrene and polyolefin, wherein a first polymer of the one or more secondary polymer types is a styrene acrylonitrile copolymer that comprises about 0 to about 19 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises about 0 to about 7 parts by weight of the blend and the blend includes the secondary polymer type;

wherein:

the primary polymer type includes two or more grades of the primary polymer type, wherein different grades are characterized by different molecular weights, different

molecular composition, different polymer structure or morphology,

the blend of recycled thermoplastic resins includes a greater amount of the primary polymer type than the secondary polymer type,

the blend is recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap,

the blend is a thermoplastic resin,

the blend has a density of about 1.06 to about 1.10 grams per cubic centimeter, as determined by ASTM D 792, a melt flow rate of about 2 to about 9 grams per 10 minutes, as determined by ASTM D 1238, a tensile stress at yield of about 36 to about 48 MPa, as determined by ASTM D 638, a notched Izod impact (3.2 mm width of notch) of about 85 to about 200 Joules per meter, as determined by ASTM D 256 and

the parts of the blend add up to 100.

69. (Cancelled)

70. (Previously Presented) The blend of claim 68, wherein one or more of the polymers of the primary or secondary polymer types exhibits detectable oxidation resulting from aging.

71. (Previously Presented) The blend of claim 68, wherein the residual additives include bromine and antimony, where the ratio of bromine to antimony is between about 1:1 and 10:1, and the bromine and the antimony are present at combined levels of about 1 ppm to about 5% by weight.

72. (Previously Presented) The blend of claim 68, wherein the residual additives include titanium dioxide at levels between about 0.5% by weight and about 5% by weight.

73. (Previously Presented) The blend of claim 68, wherein the residual additives include carbon black at levels between about 0.1% by weight and about 3% by weight.

74. (Previously Presented) The blend of claim 68, wherein the residual additives include one or more additional pigments or organic dye colorants at levels between about 1 ppm by weight and about 0.1% by weight.

75. (Previously Presented) The blend of claim 68, wherein the residual additives include two or more elements selected from the group consisting of Cd, Pb, Hg, Cr and Ni, the one or more elements being present at levels between about 0.1 ppm and 100 ppm.

76-78. (Cancelled)

79. (Previously Presented) The blend of claim 68, wherein:
one or more of the polymers of the secondary polymer types are a blend of polycarbonate with an impact modified styrene acrylonitrile copolymer, a copolymer blend of styrene acrylonitrile and acrylate polymers, a polysulfone, a copolymer of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, or polyurethane.

80. (Cancelled)

81. (Previously Presented) The blend of claim 68, wherein at least one polymer of the one or more secondary polymer types is a high impact styrene copolymer polymer, where the high impact styrene copolymer is present in the resin in a substantial amount to achieve a user selected notched izod impact strength.

82. (Currently Amended) A blend of recycled thermoplastic resins, comprising:
a primary polymer type, wherein the primary polymer type is an impact modified styrene polymer that comprises about 70 to about 99 parts by weight of the blend;

one or more secondary polymer types that are dissimilar to the primary polymer type and are selected from recycled impact modified styrene acrylonitrile copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, general purpose polystyrene and polyolefin, wherein a first polymer of the one or more secondary polymer types is a general purpose polystyrene that comprises about 0 to about 10 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises 0 to about 29 parts by weight of the blend, wherein the blend includes the second polymer type polymer; and

residual additives including two or more additives selected from the group consisting of antioxidants, heat stabilizers, UV stabilizers, flame retardants, antistatics, blowing agents, impact modifiers, compatibilizers, fillers, fiber reinforcements, fluorescent whiteners, and lubricants, wherein the residual additives comprise about 1 to about 5 parts by weight of the blend;

wherein:

the primary polymer type includes two or more grades of the primary polymer type, wherein different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology,

the blend of recycled thermoplastic resins includes a greater amount of the primary polymer type than the secondary polymer type,

the blend is recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap, the blend is a thermoplastic resin having a density of about 1.04 to about 1.08 grams per cubic centimeter, as determined by ASTM D 792, a melt flow rate of about 2 to about

8 grams per 10 minutes, as determined by ASTM D 1238, a tensile stress at yield of about 20 to about 27 MPa, as determined by ASTM D 638 and a notched Izod impact (3.2 mm width of notch) of about 60 to about 120 Joules per meter, as determined by ASTM D 256 and the parts of the blend add up to 100.

83-84. (Cancelled)

85. (Currently Amended) A blend of recycled thermoplastic resins, comprising:
a primary polymer type, wherein the primary polymer type includes a PP that comprises about 88 to about 99 parts by weight of the blend;

one or more secondary polymer types that are dissimilar to the primary polymer type and are selected from recycled impact modified styrene acrylonitrile copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers, general purpose polystyrene and polyolefin, wherein a first polymer of the one or more secondary polymer types comprises 0 to about 5 parts by weight of the blend and a second polymer of the one or more secondary polymer types comprises 0 to about 7 parts by weight of the blend and the blend includes the second polymer type; and

residual additives including two or more additives selected from the group consisting of antioxidants, heat stabilizers, UV stabilizers, flame retardants, antistatics, blowing agents, impact modifiers, compatibilizers, fillers, fiber reinforcements, fluorescent whiteners, and lubricants, wherein the residual additives comprise about 1 to about 5 parts by weight of the resin;

wherein:

the primary polymer type includes two or more grades of the primary polymer type, wherein different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology,

the blend of recycled thermoplastic resins includes a greater amount of the primary polymer type than the secondary polymer type and the blend is recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap, the blend is a thermoplastic resin,

the resin has distinct melting points at about 125°C and at about 164°C, the resin has a density of about 0.92 to about 0.96 grams per cubic centimeter, as determined by ASTM D 792, a melt flow rate of about 20 to about 30 grams per 10 minutes, as determined by ASTM D 1238, a tensile stress at yield of about 20 to about 28 MPa, as determined by ASTM D 638, a notched Izod impact (3.2 mm width of notch) of about 50 to about 100 Joules per meter, as determined by ASTM D 256 and

the parts of the blend add up to 100.

86-87. (Cancelled)

88. (Currently Amended) A blend of recycled thermoplastic resins, comprising:
a primary polymer type, wherein the one or more polymers of the primary polymer type include a polycarbonate that comprises about 20 to about 98 parts by weight of the blend;

one or more secondary polymer types that are dissimilar to the primary polymer type and are selected from recycled impact modified styrene acrylonitrile copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polyvinyl chloride, polyurethane, high impact styrene copolymers, general purpose polystyrene and polyolefin, wherein a first polymer of the one or more secondary polymer types comprises 0 to about 79 parts by weight of an impact modified styrene acrylonitrile copolymer and a second polymer of the one or more secondary polymer types comprises 0 to about 10 parts by weight of the blend, wherein the blend includes the secondary polymer type; and

residual additives including two or more additives selected from the group consisting of antioxidants, heat stabilizers, UV stabilizers, flame retardants, antistatics, blowing agents, impact modifiers, compatibilizers, fillers, fiber reinforcements, fluorescent whiteners, and lubricants, wherein the residual additives comprise about 2 to about 10 parts by weight of the resin; wherein the primary polymer type includes two or more grades of the primary polymer type, wherein different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology; the blend of recycled thermoplastic resins includes a greater amount of the primary polymer type than the secondary polymer type and the blend is recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap,

wherein the blend is a thermoplastic resin having at a tensile strength of between 40.4 and 56.2 MPa, as determined by ASTM D 638, a notched Izod impact (3.2 mm width of notch) of between 21 and 85 Joules per meter, as determined by ASTM D 256 and the parts add up to 100.

89-91. (Cancelled)

92. (Previously Presented) A method of preparing a recycled plastic material, comprising:

providing waste plastic material from one or more sources, wherein the sources are office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap, wherein the waste plastic material includes two or more dissimilar plastic types and contains non-plastic contaminants;

separating the waste plastic material into a plurality of fractions, wherein each fraction includes multiple grades of a primary polymer type, selected from one of ABS, HIPS,

PP and PC, and one or more secondary polymer types selected from recycled impact modified styrene acrylonitrile copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers, general purpose polystyrene and polyolefin, the primary polymer type is different from the secondary polymer type and a fraction includes mostly the primary polymer type with a lesser amount of the secondary polymer type, and different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology; and

blending at least a first fraction to provide a recycled plastic material having at least one uniform predetermined property selected from the group consisting of melt flow rate and density.

93. (Previously Presented) The method of claim 92, further comprising combining at least one other fraction with the first fraction prior to blending.

94. (Previously Presented) The method of claim 92, further comprising:
separating one of the fractions into two or more secondary groups of plastic materials;

wherein the step of blending includes blending the first fraction with a group of the secondary groups of plastic materials.

95. (Previously Presented) The method of claim 92, wherein blending includes blending the first fraction with a virgin plastic.

96. (Previously Presented) The method of claim 92, wherein blending includes combining at least two plastic materials where each plastic is of a different primary polymer type.

97. (Previously Presented) The method of claim 92, wherein when the first fraction includes a primary polymer type and a second fraction includes the primary polymer type, the first fraction is distinguishable from the second fraction based on one or more properties of the first fraction.

98. (Previously Presented) The method of claim 92, further comprising compounding an additive or a polymer with the recycled plastic material.

99. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of a first ABS material and a second ABS material that are combined to form a recycled plastic material having a notched izod impact strength higher than the notched izod impact strength of both the first ABS material and the second ABS material.

100. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of an ABS material and a HIPS material that are combined to form a recycled plastic material having an increased tensile strength relative to a tensile strength of the HIPS material.

101. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of a modified PPO material and a HIPS material that are combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength and decreased melt flow rate relative to the HIPS material.

102. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of an ABS material and a PC material that are combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength relative to the ABS material.

103. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of an ABS material and a regrind flame retarded PC material that are combined to form a recycled plastic material having an increased tensile strength relative to the ABS material.

104. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of an ABS material and a PC/ABS material that can be combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength relative to the ABS material.

105. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermined property including determining amounts of grades of ABS materials to form a recycled plastic material with a predetermined SAN content, wherein the predetermined SAN content is sufficient to achieve one or more predetermined properties, the properties including one of environmental stress crack resistance, tensile strength, impact strength, or melt flow rate of the recycled plastic material.

106. (Previously Presented) The method of claim 92, further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform

predetermine property including determining amounts of a first ABS material and a second ABS material that are combined to form a recycled plastic material having a notched izod impact strength higher than the notched izod impact strength of the first ABS material lower than the second ABS material.

107. (Previously Presented) The method of claim 92, further comprising:
selecting a secondary polymer that is compatible with the primary polymer type;
and
blending the secondary polymer with the first fraction.
108. (Previously Presented) The method of claim 107, wherein:
selecting a secondary polymer includes selecting polypropylene, a low density polyethylene or a polymer with which polypropylene is compatible.
109. (Previously Presented) The method of claim 107, wherein:
selecting a secondary polymer includes selecting polycarbonate, PC/ABS, an acrylonitrile butadiene styrene terpolymer, an acrylonitrile styrene acrylate copolymer or another polymer with which polycarbonate is compatible.
110. (Previously Presented) The method of claim 107, wherein:
selecting a secondary polymer includes selecting an impact modified styrene polymer, a general purpose polystyrene, a modified polyphenylene ether or another polymer with which HIPS is compatible.
111. (Previously Presented) The method of claim 92, further comprising forming a pellet from the recycled plastic material.

112. (Previously Presented) The method of claim 92, further comprising extruding a sheet of the recycled plastic material.

113. (Previously Presented) The method of claim 112 further comprising co-extruding the recycled plastic material with layers containing one or more polymers, including impact modified styrene acrylonitrile copolymer, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers or polyolefins.

114. (Previously Presented) The method of claim 92 further comprising co-injection molding the recycled plastic material with layers containing one or more polymers, including impact modified styrene acrylonitrile copolymer, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers or polyolefins.

115. (Previously Presented) The blend of claim 82, wherein one or more of the polymers of the primary or secondary polymer types exhibits detectible oxidation resulting from aging.

116. (Previously Presented) The blend of claim 85, wherein one or more of the polymers of the primary or secondary polymer types exhibits detectible oxidation resulting from aging.

117. (Previously Presented) The blend of claim 88, wherein one or more of the polymers of the primary or secondary polymer types exhibits detectible oxidation resulting from aging.

118. (Previously Presented) The blend of claim 82, wherein the residual additives include bromine and antimony, where the ratio of bromine to antimony is between about 1:1 and 10:1, and the bromine and the antimony are present at combined levels of about 1 ppm to about 5% by weight.

119. (Previously Presented) The blend of claim 85, wherein the residual additives include bromine and antimony, where the ratio of bromine to antimony is between about 1:1 and 10:1, and the bromine and the antimony are present at combined levels of about 1 ppm to about 5% by weight.

120. (Previously Presented) The blend of claim 88, wherein the residual additives include bromine and antimony, where the ratio of bromine to antimony is between about 1:1 and 10:1, and the bromine and the antimony are present at combined levels of about 1 ppm to about 5% by weight.

121. (Previously Presented) The blend of claim 82, wherein the residual additives include titanium dioxide at levels between about 0.5% by weight and about 5% by weight.

122. (Previously Presented) The blend of claim 85, wherein the residual additives include titanium dioxide at levels between about 0.5% by weight and about 5% by weight.

123. (Previously Presented) The blend of claim 88, wherein the residual additives include titanium dioxide at levels between about 0.5% by weight and about 5% by weight.

124. (Previously Presented) The blend of claim 82, wherein the residual additives include carbon black at levels between about 0.1% by weight and about 3% by weight.

125. (Previously Presented) The blend of claim 85, wherein the residual additives include carbon black at levels between about 0.1% by weight and about 3% by weight.

126. (Previously Presented) The blend of claim 88, wherein the residual additives include carbon black at levels between about 0.1% by weight and about 3% by weight.

127. (Previously Presented) The blend of claim 82, wherein the residual additives include one or more additional pigments or organic dye colorants at levels between about 1 ppm by weight and about 0.1% by weight.

128. (Previously Presented) The blend of claim 85, wherein the residual additives include one or more additional pigments or organic dye colorants at levels between about 1 ppm by weight and about 0.1% by weight.

129. (Previously Presented) The blend of claim 88, wherein the residual additives include one or more additional pigments or organic dye colorants at levels between about 1 ppm by weight and about 0.1% by weight.

130. (Previously Presented) The blend of claim 82, wherein the residual additives include two or more elements selected from the group consisting of Cd, Pb, Hg, Cr and Ni, the one or more elements being present at levels between about 0.1 ppm and 100 ppm.

131. (Previously Presented) The blend of claim 85, wherein the residual additives include two or more elements selected from the group consisting of Cd, Pb, Hg, Cr and Ni, the one or more elements being present at levels between about 0.1 ppm and 100 ppm.

132. (Previously Presented) The blend of claim 88, wherein the residual additives include two or more elements selected from the group consisting of Cd, Pb, Hg, Cr and Ni, the one or more elements being present at levels between about 0.1 ppm and 100 ppm.